

REMARKS/ARGUMENTS

The present invention claims methods for improving the elastic modulus of oils while maintaining the flowability of the oils. The claimed invention involves the addition of polymers and copolymers containing polyether groups to oils. The treated oils retain fluidity but have high elastic modulus values.

Because the polymers give high elastic modulus with good flowability to oils, the polymers are especially useful in products such as lubricating oils, inks, paints, polishing liquids and anti-sedimentation agents.

Applicants have discovered that certain types of polyether-containing polymers can unexpectedly impart high elastic modulus values to oils while maintaining flowability.

Although the addition of polymers containing polyether groups to oils has been previously disclosed, no cited reference teaches or suggests a method that utilizes these compounds to improve the elastic modulus of oils while maintaining flowability.

The rejection of Claims 1-5 under 35 U.S.C. §103(a) over Miyanaga (WO 99/42513, U.S. 6,417,323) is respectfully traversed.

Miyanaga discloses a process for producing polyethers and the use of the polyethers for the gelation of oils. The Examiner notes that Miyanaga discloses that stearyl glycidyl ether polymer provides rheology control of oils by gelation of liquid paraffin oil, myristic oil and soybean oil. The goal of Miyanaga was to gel the liquid oils so that the oil may be used in applications such as cosmetics. The rheological control in Miyanaga required that the oil gel and not be flowable so that the oil would be useful in its intended application which required non-fluid products.

As disclosed in the present invention, Applicants discovered that selected polyether containing polymers increase the elastic modulus of oil while maintaining flowability (i.e., no effective gelation of the oil). Although Miyanaga discloses compounds of Formula (I)

wherein R^1 is a hydrocarbon (Formula (V) in Miyanaga), there is no disclosure or suggestion that these compounds would be useful as a method for increasing the elastic modulus of oils while maintaining the oil's flowability. As such, Applicants discovery that the elastic modulus is increased while the flowability is maintained is unexpected. Indeed the Miyanaga reference only discloses that polyethers are useful for the gelation of oils. In addition, although some of the compounds listed in amended Claim 1 of the present invention were disclosed in Miyanaga, none were disclosed as having been evaluated in oils. The compounds evaluated in Miyanaga were compounds where R^1 is a C_1 , C_{12} or C_{18} hydrocarbon. Claim 1 has been amended to exclude these compounds so that the claimed compounds, which are C_2 to C_8 hydrocarbons, do not inher from Miyanaga.

Because Applicants have discovered an unexpected improvement in the elastic modulus of oil while maintaining oil fluidity and because the cited reference neither discloses nor suggests such a method, it is respectfully requested that the Examiner withdraw the rejection.

The rejection of Claim 6 under 35 U.S.C. §101 and §112 is obviated by the cancellation of Claim 6.

In light of the amendments and the comments contained herein, Applicants respectfully submit that the present application is now in condition for allowance. Favorable reconsideration is respectfully requested. Should anything further be required to place the

Application No. 09/805,040

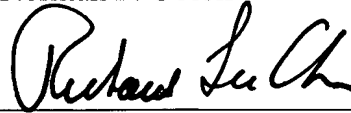
Reply to Office Action of March 18, 2004

application in condition for allowance, the Examiner is requested to contact the undersigned
by telephone.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Norman F. Oblon



Richard L. Chinn, Ph.D.

Registration No. 34,305

Donald K. Drummond, Ph.D.

Registration No. 52,834

Customer Number

22850

Tel: (703) 413-3000

Fax: (703) 413 -2220

(OSMMN 05/03)

DKD:aps